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Sistotrema macrosporum sp. nov. from India

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Abstract—A new corticioid species, *Sistotrema macrosporum*, is described from Himachal Pradesh, India.

Key words—*Basidiomycota, Agaricomycetes,* Himalaya *Hydnaceae*

Introduction

During the fungal forays conducted in August 2012 in the Chaupal area of district Shimla, Himachal Pradesh, India, Maninder & Avneet collected a fungus on decaying wood of *Cedrus deodara* in a mixed coniferous forest. On the basis of comparison of macroscopic and microscopic characters (Eriksson & al. 1984, Gorjón & Hallenberg 2008, Dhingra & al. 2009, 2014; Bernicchia & Gorjón 2010, Prasher & Ashok 2013, MycoBank 2018) we referred the fungus to *Sistotrema* (*Hydnaceae*, *Agaricomycetes*, *Basidiomycota*). The specimens resembled *S. sernanderi* (Litsch.) Donk in basidiospore shape and the presence of gloeocystidia, but differed in its larger basidiospores. Here we describe the fungus as a new species, *S. macrosporum*.

Materials & methods

Samples were collected during field trips conducted in Chaupal forest division of district Shimla (Himachal Pradesh) during August 2012. Observations regarding locality/forest type, host/substrate, basidiocarp texture, hymenial surface colour and type, margins, etc. were recorded in the field. Colours are coded according to

Kornerup & Wanscher (1978). After removal of extraneous matter, the collected specimen was dried in sun and in a portable electric drier. The dried material was deposited at the Herbarium, Department of Botany, Punjabi University, Patiala, India (PUN). Crush mounts and free hand sections were used to study the micromorphological details (hyphae, cystidia, basidia, basidiospores, etc.) in water and 3%, 5%, and 10% KOH solutions and stained in cotton blue (1% in lactophenol), Congo red (1% in distilled water), phloxine (1% in distilled water), sulphovanillin (0.5gm vanillin + 4.0ml conc. sulphuric acid + 2.0ml distilled water), and Melzer's reagent (0.5gm iodine + 1.5gm KI + 20gm chloral hydrate + 20ml distilled water). Line diagrams of various microscopic structures were drawn using a camera lucida at 100×, 400×, and 1000× magnifications of the compound microscope. We then compiled data for identification and comparison with the published literature.

Taxonomy

Sistotrema macrosporum Man. Kaur, R. Kaur, Avn. P. Singh & Dhingra, **sp. nov.** Plate 1

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Differs from *Sistotrema sernanderi* by its longer and wider basidiospores.

Type: India, Himachal Pradesh: Shimla, Chaupal, on the bark of decaying wood of *Cedrus deodara* (Roxb. ex D. Don) G. Don, 18 August 2012, Maninder Kaur 7920 (**Holotype**, PUN).

Etymology: The epithet refers to the large basidiospore size.

Basidiocarps resupinate, effused, loosely adnate, ≤250 µm thick in section; hymenial surface smooth, tuberculate under lens, grayish white to light gray when fresh, brownish gray on drying; margins thinning, pruinose, paler concolorous, or indeterminate. Hyphal system monomitic. Generative hyphae ≤3.7 µm wide, septate, clamped, thin-walled, with oily contents; basal hyphae parallel to the substrate, less branched, with ampullate swellings; subhymenial hyphae vertical, more branched. Gloeocystidia 47–65 × 6–8 µm, flexuous, thin- to thick-walled, with basal clamp; oily contents negative to sulphovanillin. Basidia 20–34 × 8–9 µm, sub-urniform to urniform, 4-sterigmate, with basal clamp and oily contents; sterigmata ≤5.8 µm long. Basidiospores 8–11.5 × 3–3.7 µm, narrowly ellipsoid to suballantoid, thin-walled, smooth, with oily contents, acyanophilous, inamyloid.

Discussion

Thirteen *Sistotrema* species have previously been reported from India: *S. angustisporum* Dhingra, *S. biggsiae* Hallenb., *S. binucleosporum* Hallenb., *S. brinkmannii* (Bres.) J. Erikss., *S. confluens* Pers., *S. diademiferum* (Bourdot & Galzin) Donk, *S. heteronemum* (J. Erikss.) Å. Strid, *S. kirghizicum* (Parmasto)

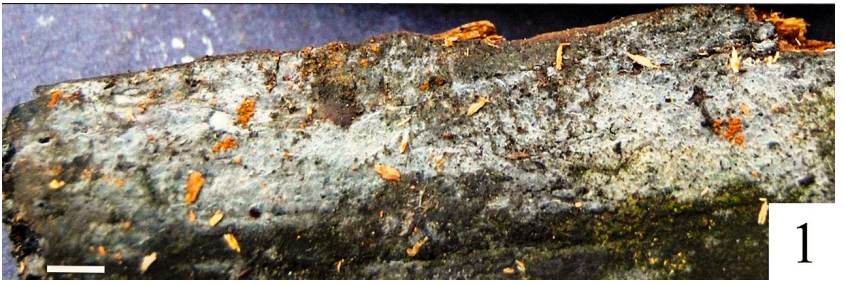
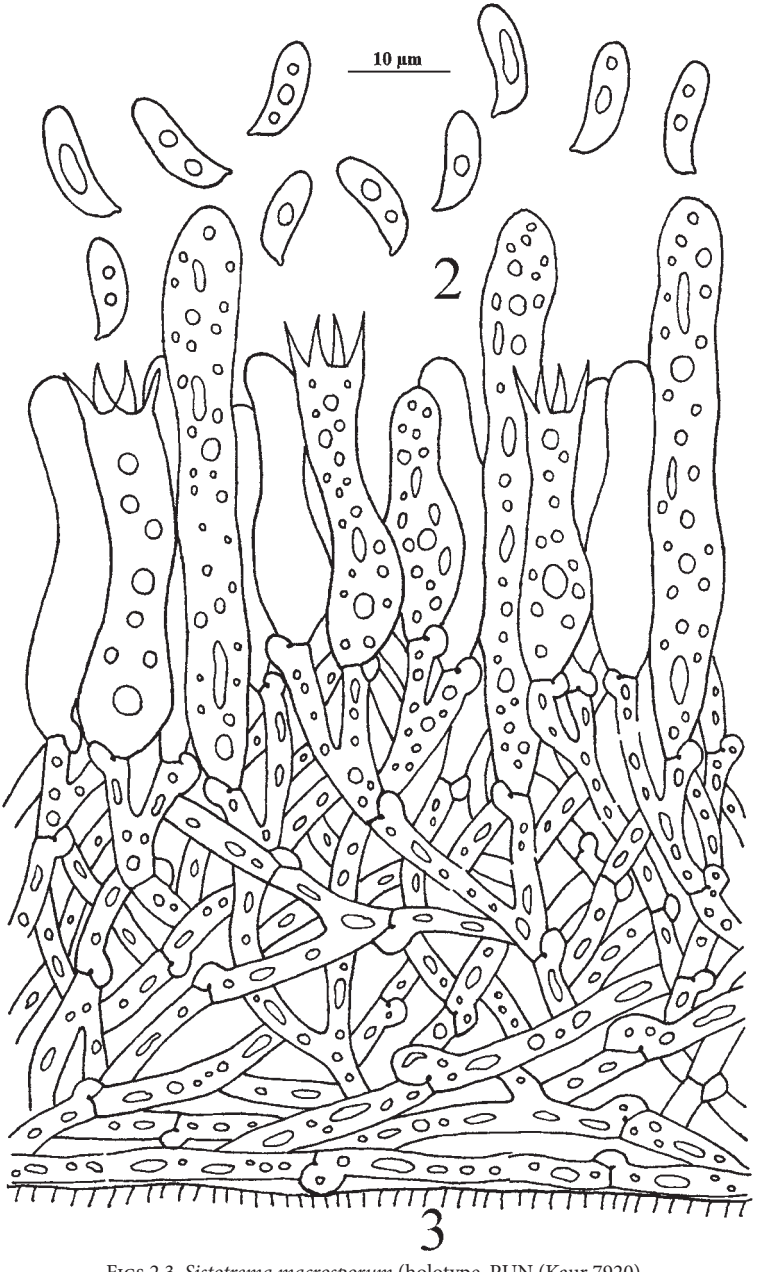


Fig. 1. *Sistotrema macrosporum* (holotype, PUN (Kaur 7920). Basidiocarp showing hymenial surface. Scale = 5 mm.

Domański, *S. lachrymisporum* S.S. Rattan, *S. octosporum* (Höhn. & Litsch.) Hallenb., *S. porulosum* Hallenb., *S. sernanderi*, and *S. subtrigonospermum* D.P. Rogers (Rattan 1977; Dhingra & Singla 1997; Dhingra 2004; Dhingra & al. 2009; Sharma 2012, 2017; Samita 2014; Kaur & al. 2018). The new species *S. macrosporum* extends this total to fourteen.

A key to the *Sistotrema* species recorded from India

1. Cystidia absent 2
1. Cystidia present 3
2. Basidiospores ≤7 µm long ..... ***S. sernanderi***
2. Basidiospores >7 µm long ..... ***S. macrosporum***
3. Cystidia encrusted ..... ***S. angustisporum***
3. Cystidia not encrusted 4
4. Cystidia basally widened, without oily contents ..... ***S. kirghizicum***
4. Cystidia flexuous, with oily contents 5
5. Basidiospores tetrahedral ..... ***S. subtrigonospermum***
5. Basidiospores not pyramid-shaped 6
6. Basidiocarp stipitate ..... ***S. confluens***
6. Basidiocarp resupinate 7
7. Basidiospores allantoid 8
7. Basidiospores not sausage-shaped 9
8. Basidiocarp smooth to odontioid ..... ***S. brinkmannii***
8. Basidiocarp smooth to porulose ..... ***S. porulosum***
9. Basidiospores tear-drop shaped ..... ***S. lachrymisporum***
9. Basidiospores ellipsoid to cylindrical to ovate to oblong 10
10. Some basal hyphae light brown pigmented ..... ***S. heteronemum***
10. All hyphae hyaline 11



Figs 2,3. *Sistotrema macrosporum* (holotype, PUN (Kaur 7920).
2. Basidiospores; 3. Vertical section through basidiocarp.

11. Basidiocarp membranaceous, with loose texture 12
11. Basidiocarp thin, adnate, porulose 13
12. Basidiocarp fibrillose, with strands ..... ***S. octosporum***
12. Basidiocarp smooth, without strands ..... ***S. biggsiae***
13. Basidiospores ellipsoid to ovoid-subglobose, 3.5–5 × 3–3.5 µm ..... ***S. diademiferum***
13. Basidiospores subcylindrical to ellipsoid, 3.3–3.8 × 1.3–1.8 µm ..... ***S. binucleosporum***

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